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Evaluation of 18 Specialty Potatoes in Southwest Michigan

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Objective

The purpose of this trial is to evaluate the performance of 18 specialty potato selections for their adaptability to southwest Michigan growing conditions. This is the third year for evaluating specialty potatoes in an attempt to encourage farmer's market vendors to make them part of their offerings.

Summary

Nineteen potato cultivars were evaluated for their production potential in southwest Michigan. A range in yield and tuber quality was found in the entries. Entries included russets, fingerlings, and other tuber types; therefore, the trial as a whole was not subjected to statistical analysis. The three russet tuber types (Rio Grande Russet, Canela Russet, and Russet Burbank) were subjected to analysis. Rio Grande Russet had a statistically higher total yield compared to Russet Burbank. The three entries were similar in other traits evaluated.

Methods

Fertilizer

Prior to planting, polymer-coated urea (44-0-0), 0-0-60, 95% sulfur, and Granubor were broadcast and incorporated at 70, 200, 28, and 15 pounds/acre, respectively. After planting, nutrients were applied through a drip system using Nitro Plus (18N-5Ca-1.5Mg and a proprietary growth regulator) and 28% nitrogen (28-0-0). Nitro Plus was applied at 15 gallons per acre on June 16, 23, 30, and July 7. The 28% was applied July 14, 21, 28, August 3, 11, and 18 for a total nitrogen rate of 164 pounds per acre.

Weed Control

Weeds were controlled through cultivation and hoeing.

Planting

Seed potatoes were obtained from Potato Garden and entry descriptions can be found at www.potatogarden.com. Seed pieces were prepared May 16, 2014, and planted June 2. Seed pieces were placed 12 inches apart in the row in plots 15 feet long with between row spacing of 5 feet. The wide row spacing was due to equipment restrictions. The trial was planted as a completely randomized design, however, due to different tuber types statistical analysis was only conducted for the three russet types.

Plant Care

Drip lines were placed over the rows after planting and prior to hilling and the plants irrigated as needed. Disease and insect pests were controlled using standard commercial practices.

Harvest and Data Collection

Plots were harvested between September 3 and September 26 and graded into Number 1, Number 2, and Cull tubers.

Results

The 19 entries ranged in total yield from 49.1 for Ozette Fingerling to 183.6 cwt/acre for Early Rose (Table 1). These yields are lower than commercial yields partially due to the higher than recommended between row spacing of 5 feet. Yields could potentially be doubled simply with closer in-row and between-row spacing. However, even with tighter spacing, yield for some entries would still be considered low. Planting time was two weeks later than earlier trials. Go to www2.ag.purdue.edu/hla/fruitveg/MidWest%20Trial%20Reports/2012/06-01_Goldy_Potato.pdf for results of those trials. The 2014 growing season was also cooler than 2012. Taken together, these two reasons could account for a significant yield reduction. The entries had a wide range of skin and flesh colors as can be seen in the figures at the end of this report.

Number 1 tubers ranged from 41.8 cwt/acre (Kipfel Fingerling) to 167.1 (Ker's Pink). Number 2 weights ranged from 0.7 cwt/acre for Red Thumb Fingerling to 47.7 for Bintje. Many of the tubers graded into culls were due to "knobby" tubers. This trait is often due to inconsistent watering, which allows for axillary buds to begin growing during times of sufficient soil moisture. This was not as significant in 2014 as it was in 2012 due to timely rain events and drip irrigation during 2014 compared to the hot, dry conditions of 2012.

Yield of the three russet entries subjected to statistical analysis ranged from 92.4 cwt/acre for Russet Burbank to 164.3 for Rio Grande Russet (Table 2). Rio Grande Russet and Canela Russet were statistically similar in total yield (Table 2), but they were all statistically similar in Number 1, Number 2, or Cull tubers. Canela Russet exhibited a much stronger russeted skin than did Rio Grande Russet and Russet Burbank.

Table 1. Yield in hundredweight per acre (cwt/a) of 18 potato cultivars grown in 2014 at the Southwest Michigan Research and Extension Center, Benton Harbor, Michigan. Plant spacing was 5 feet between rows and 1 foot in the row.

Cultivar	Total Yield	Yield No. 1	No. 2 (cwt/a)	Cull (cwt/a)	Exterior Color ¹	Interior Color ¹
Ozette Fingerling	49.1	45.3	1.5	2.3	W	W
Kipfel Fingerling	53.4	41.8	8.9	2.7	W	W
La Ratte Fingerling	61.7	51.2	9.9	0.6	W	W
Rose Finn Apple Fingerling	67.1	53.0	11.3	2.8	R	W
Garnet Chile	77.0	63.9	11.3	1.8	P	W
Nooksack	77.0	63.5	8.5	5.0	W	W
Corte D'Ours	79.1	60.8	16.8	1.5	P	W
Russet Burbank	92.4	75.6	410.4	6.4	Ru	W
Red Thumb Fingerling	103.4	97.1	0.7	5.6	R	P
Austrian Crescent	117.1	100.0	13.1	4.0	W	W
Canela Russet	133.5	115.9	10.2	7.4	Ru	W
French Fingerling	147.7	133.1	5.0	9.6	R	W/R
German Butterball	152.9	145.2	7.2	0.5	W	W
Green Mountain	159.8	144.7	9.5	5.6	W	W
Rio Grande Russet	164.3	138.6	20.8	4.9	Ru	W
Kerr's Pink	175.3	167.1	2.1	6.1	P	W
Bintje	177.4	124.3	47.7	5.4	W	W
Early Rose	183.6	157.1	19.5	7.0	P	W

¹Color: W=white, R=red, P=pink, Ru=russet.

Table 2. Yield in hundredweight per acre (cwt/a) of three russet potato cultivars grown in 2014 at the Southwest Michigan Research and Extension Center, Benton Harbor, Michigan. Plant spacing was 5 feet between rows and 1 foot in the row. Numbers in bold are not statistically different than the best performer.

Cultivar	Total cwt/a	No. 1 cwt/a	No. 2 cwt/a	Cull cwt/a
Rio Grande Russet	164.3	138.6	20.8	4.9
Canela Russet	133.5	115.9	10.2	7.4
Russet Burbank	92.4	75.6	410.4	6.4
Lsd .05	54.3	ns	ns	ns











